

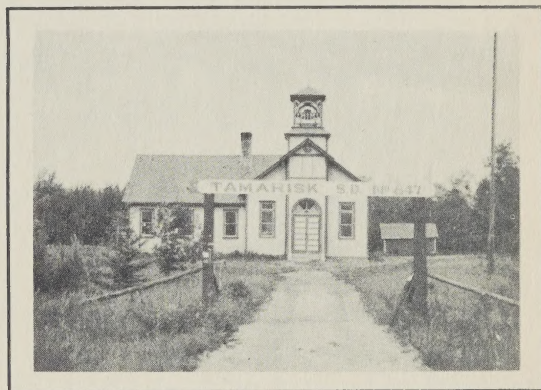
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Canada. Agriculture Dept. of. Marketing Service,  
Economics Division

A FARM BUSINESS study  
(IN THE  
GILBERT PLAINS AND SIFTON AREAS  
OF  
MANITOBA)

LV. 4

J. G. MACKENZIE



CANADA DEPARTMENT OF AGRICULTURE  
MARKETING SERVICE - ECONOMICS DIVISION

IN CO-OPERATION WITH  
THE DEPARTMENT OF POLITICAL ECONOMY  
UNIVERSITY OF MANITOBA

OTTAWA, JANUARY, 1953





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D.M. King, S. Garland, J. Milton and J.C. Gilson, all of the Economics Division staff at Winnipeg, assisted in the collection and analysis of the data.



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THE FARM BUSINESS IN THE GILBERT PLAINS AND SIFTON AREAS  
OF MANITOBA, 1949

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J.G. MacKenzie 1/

INTRODUCTION

The investigation of the farm business in the Gilbert Plains and Sifton areas is part of a comprehensive inquiry into the economic and social problems associated with the utilization of land in Manitoba. This study and studies made previously are of areas representative of certain types of farming on fairly large areas of important soil. These studies deal with the physical and financial aspects of the farm organization and some of the factors responsible for farm success. They indicate the progress of the farm operators as well as the general development and progress of the different areas. They also aid in determining the most suitable farm type adaptable to the different soils. The study in these two areas extends the investigation to farms on Black Earth, Degrading Black Earth and Grey-wooded soils.

This study was undertaken in the summer of 1949 by the Economics Division, Marketing Service, Canada Department of Agriculture, in co-operation with the Department of Political Economy, University of Manitoba. The purpose of the study was to gather data that would add to the knowledge of those who are carrying out the actual farm operations and those who are responsible for promoting and administering agricultural policies and services.

The specific objectives of the study were:

1. To determine the patterns of land use.
2. To study the physical and financial organization of the farms.
3. To relate the various cultural and management practices to returns and farm success.
4. To provide information on the most suitable farm size, land use, and combinations of enterprises for use as a guide for future farm operations.

The study was carried out in two steps. The first step involved the collection of data from municipal offices relating to ownership, assessment and occupancy of each parcel of land. The second was the collection of information relating to the utilization of land, farm inventories, sources of receipts, farm expenditures, liabilities, and the personal history of the farm operator and his family. Information relating to the farm business was obtained from the farm operators by a one-call survey.

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1/ Technical Officer, Economics Division, Canada Department of Agriculture, Winnipeg, Manitoba.



The farms within the areas were stratified according to size, and within each size group the farms visited were selected at random. Eighty-one records were obtained in the Gilbert Plains area and 80 in the Sifton area. The farm business record covered the period from June 1, 1948 to May 31, 1949.

### GENERAL CHARACTERISTICS OF THE AREA

Location.- The location of the two areas included in the study is shown in Figure 1. The Gilbert Plains area is a rectangular block of land situated between the northern edge of the Riding Mountain and a line joining the towns of Dauphin, Gilbert Plains and Grandview. It includes most of the southern parts of Gilbert Plains and Grandview municipalities. The Sifton area is located immediately to the northeast of the Gilbert Plains area. It lies almost entirely within the Dauphin municipality. The village of Sifton, which is about 18 miles north of the town of Dauphin, is in the centre of the area.

Soils.- This general area is marked by a wide variation in soil types. A strip of deep fertile soil about ten miles in width extends along the north slope of the Riding Mountain to the base of the Duck Mountain. But as one travels in a northerly direction the soils become lighter-textured and less productive. Associated with the variability in the productivity of these soils are problems of land use, land improvement, soil erosion and the maintenance of soil fertility. These problems vary with each type of soil and with the length of time the land has been under cultivation.

The main soils in the Gilbert Plains area are the Shortdale loams and Meharry clay loams. These are black earth and degrading black earth soils and were developed on glacial till and alluvial deposits, under aspen grove and prairie vegetation.<sup>1/</sup> These soils are of good depth, fertile, stone free, well drained and relatively easily tilled, and so are ideally suited to either grain growing or mixed farming. Although fertility is high, crops show a marked response to phosphate fertilizers which indicates a phosphorous deficiency in these soils. Moisture conservation is not a problem here.

In the Sifton area the main soils are the Gilbert light loams and the Gilbert-Meharry transition, together with a small area of the Meharry stony phase. These soils were developed on a high lime till over which sediments of loamy sand and heavy fine sand have been deposited. The texture varies from farm to farm. There is a moisture problem on the soils of lighter texture and, because of this, decreased crop yields often occur. The crop yields, however, are increased by the use of **phosphate** fertilizers if moisture conditions are favourable. Some local areas are completely stone free while others are too stony to permit cultivation. Damage from wind erosion occurs during prolonged dry spells. Water is plentiful for livestock and, in general, this area is fair to good for mixed farming.

<sup>1/</sup> For a more detailed description of the soils of the area see Land Classification Map, Grandview Area in Manitoba. Soils Department, University of Manitoba, Winnipeg, Manitoba. 1944.



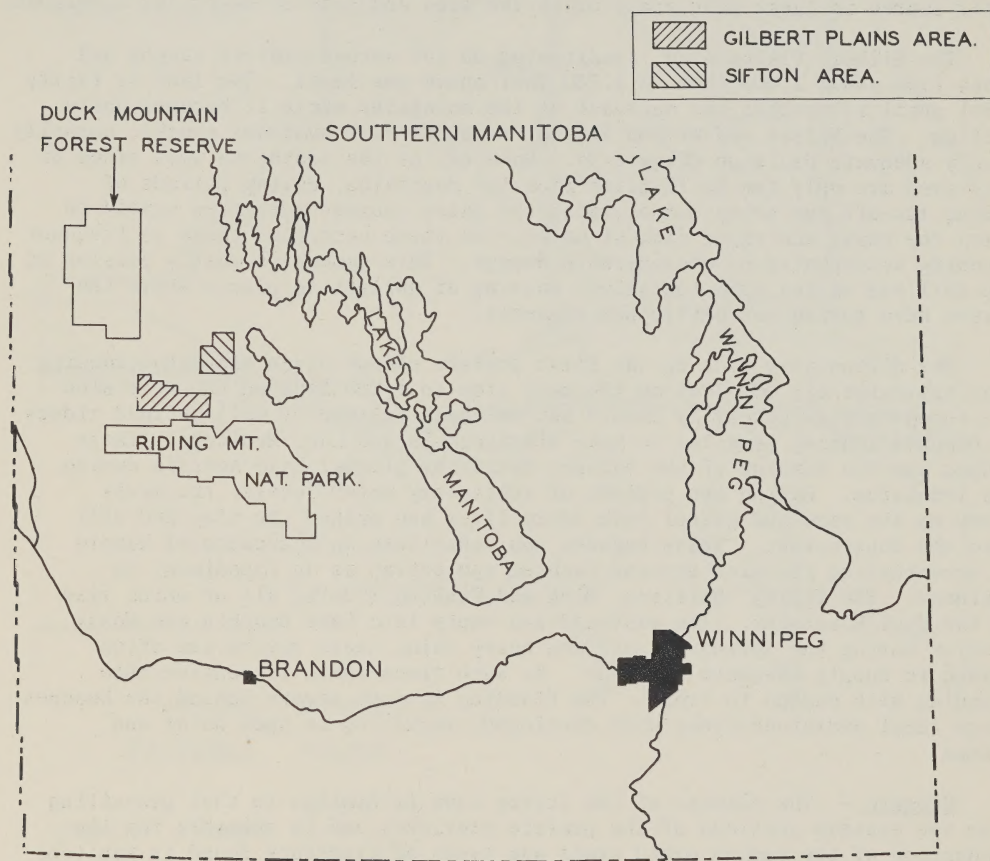


FIGURE 1. SHOWING LOCATION OF THE SURVEY.

Topography and Drainage.- The Riding Mountains are to the south of the area and the Duck Mountains to the west. These mountains, rising to between 2,400 and 2,500 feet, are roughly undulating with sharp hills and frequent depressions often containing small lakes. They are wooded throughout. The land between the mountains and Lake Dauphin and Lake Winnipegosis is generally level, sloping gradually to the east. Numerous creeks and rivers, having their source in these mountains, drain the area and provide water for livestock.

The Gilbert Plains area is situated on the second prairie steppe and rises from about 1,400 feet to 1,700 feet above sea level. The land is fairly level until it reaches the approach of the mountains where it becomes quite rolling. The Valley and Wilson rivers, together with numerous creeks, normally supply adequate drainage (Figure 2). However, as the south and west sides of this area are only ten to 15 miles from the mountains, during periods of spring run-off and heavy summer rains the water courses are often unable to carry the heavy and rapid flow of water. On these occasions there is frequent flooding accompanied by considerable damage. This damage is mostly erosion of top soil and varies from the slight washing of gullies to places where the rivers have forced out entire new channels.

The Sifton area lies on the first prairie steppe on an elevation ranging from approximately 900 feet on the east side to 1,200 feet on the west side. The topography is generally smooth but is characterized by well-defined ridges or beaches running parallel to Lake Winnipegosis and Lake Manitoba. These ridges are the remains of the beaches formed by glacial Lake Agassiz during its recession. During the periods of stationary water levels, the waves threw up the sand and gravel into shore lines and washed the clay and silt into the depressions. These beaches now constitute an agricultural hazard by accentuating the wind erosion problem and acting as an impediment to drainage. The Valley, Drifting, Mink and Fishing rivers, all of which rise in the Duck Mountains, flow eastward and empty into Lake Dauphin and Mossy River. During the spring run-off and heavy rains these rivers are often unable to supply adequate drainage. At such times there is considerable flooding with damage to crops. The flooding is most severe behind the beaches where local undrained areas have developed, resulting in open water and swamps.

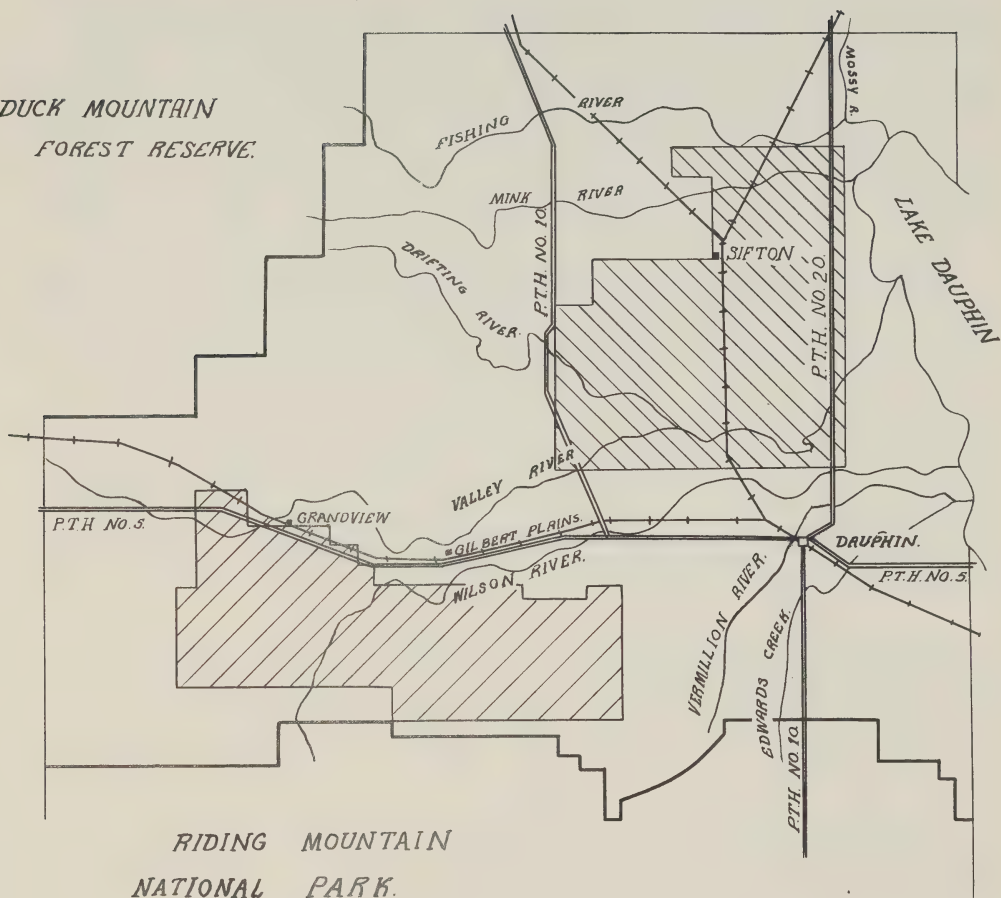
Climate.- The climate of the survey area is similar to that prevailing over the eastern sections of the prairie provinces and is suitable for the production of the common grain crops and types of livestock found in Manitoba. The frost free period ranges from 110 to 125 days, being slightly longer in the Sifton area and shorter on the higher elevations of the Gilbert Plains area. The rainfall averages 16.5 inches at Dauphin as compared to 17.5 at Brandon with about 7.5 inches falling during the growing season at Dauphin and 8.7 inches at Brandon. The winters are long and the summers are generally cool. The average mean temperature for the months from April to September is 56°F. at Dauphin. Evaporation is lower in this area than in the southern and western parts of the province.

Native Vegetation.- Although both districts are in the same general area they are situated in different vegetation regions.<sup>1/</sup> The Sifton

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<sup>1/</sup> Ellis, J.H. The Soils of Manitoba. Economic Survey Board. Province of Manitoba. 1938. pp. 33-35.

DUCK MOUNTAIN  
FOREST RESERVE.



RIDING MOUNTAIN  
NATIONAL PARK.

GILBERT PLAINS.



SIFTON.





district is in the prairie aspen-grove region. This section was originally more or less prairie with tall grass prevailing. But for many years there has been a woodland invasion taking place and numerous bluffs of aspen and Balm of Gilead poplars are now common. The gravel ridges are generally grassed and many of the poorly drained areas have developed into hay marshes or willow bogs. Gilbert Plains is in the mixed woods region. The vegetation is made up largely of aspen, Balm of Gilead, Manitoba maple and willow interspersed with shrubs. The more heavily wooded areas are found on the rolling land approaching the mountain and along the water courses and drainage channels.

Services and Facilities.- In the early days this general area, isolated from the rest of the province by the mountains to the south and west and by the lakes and swampy land to the east, tended to become to a considerable extent dependent on local services and facilities. Dauphin became the main town with markets and handling facilities for farm produce, and retail stores capable of supplying the needs of the surrounding country. This town now has a population of approximately 5,000. The Canadian National Railway, with a divisional point at Dauphin, supplies daily train service east and west through Gilbert Plains and Grandview. Also, branch lines which run to Swan River and Winnipegosis pass through Valley River and Sifton. The local elevators throughout the area generally provide adequate handling facilities for grain. Livestock may be shipped direct by rail or truck, in the latter case being picked up at the farm.

Three all-weather highways which are maintained by the Provincial Government pass through the area. Highway number five runs east and west; number ten runs north and south; and number 20 runs from Dauphin to Winnipegosis. These roads are kept open as long as the weather permits, which makes possible daily transfer truck and bus service for the greater part of the year.

The market roads are generally well maintained and graded, depending on the type of construction, so that they are usually adequate for transportation to and from the market centres. However, some of them are not gravelled and travel is often difficult during wet weather. The secondary roads are fair to good depending on the locality in which they are situated. In some of the sparsely settled local areas the roads are very poor and in some instances they are only trails because their use does not warrant expensive road construction. The many small streams make travel within the area difficult.

An airport at Dauphin provides air transportation to mining points in the north and to Winnipeg.

Both areas are well supplied with social as well as marketing and transportation services. Rural schools are in use wherever there is need and country halls and churches are fairly common. High schools, hospitals, doctors, dentists, and many other services are situated in the larger centres where the need and support warrants them. The school unit at Dauphin is one of the most modern in the province; in addition to the regular curriculum it provides vocational training in agriculture and home economics. Telephones are in general use and the installation of hydro is underway.

Many small industries situated in and adjacent to the area have added much to the service of the area as well as providing considerable employment for labour. The C.N.R. yards in Dauphin employ about 70 men. Facilities for handling dairy and poultry products, soft drink bottling plants, furniture manufacturing, machine and repair shops are also located in Dauphin. At Sifton there is a woollen mill and a cement block plant. Fishing at Winnipegosis is fairly extensive and many small lumber mills operate in the Riding and Duck Mountains.

Settlement and Development. - The first settlement in the area north of the Riding Mountains was in 1883. For several years the development of the area was delayed due to lack of a railway and roads. The early settlers had to pack their supplies across bush trails over the Riding Mountain from Russell and Binscarth or over swampy land to the east of the Riding Mountain. But in 1896 settlement began in earnest. In this year the railway went through and the present town of Dauphin became established.

Until 1900 the settlers were largely from Ontario and of Anglo-Saxon origin. These people, experienced in Canadian agriculture and with some knowledge of the country, settled on the best land which lies immediately north of the Riding Mountain, of which the Gilbert Plains district is part. At the turn of the century there was a large influx of settlers from central Europe, but as the better land was mostly taken by that time, these people settled farther north on the lighter textured soils which include the Sifton district.

The rural municipalities of Dauphin, Gilbert Plains and Grandview include within their boundaries all of the Gilbert Plains and Sifton districts. While these municipalities are considerably larger than the survey areas, the long-time trends in them are similar to the general growth and development of the areas of the study.

In Dauphin and Gilbert Plains municipalities the rural population increased until 1921 (Table 1). During the twenties the population declined in Dauphin

Table 1.- Rural Population, Dauphin, Gilbert Plains and Grandview  
Municipalities, 1901 - 1946

Year	Dauphin	Gilbert Plains	Grandview
- numbers -			
1901	3,259	2,350	1,149
1906	3,894	3,041	1,357
1911	4,048	3,264	1,611
1916	5,029	3,650	1,932
1921	6,074	4,182	1,955
1926	5,777	3,762	2,368
1931	5,703	3,478	2,305
1936	6,041	3,695	2,757
1941	6,069	3,439	2,797
1946	5,403	2,993	2,386

Source: Census of Canada.

municipality but increased during the thirties until by 1941 it was about the same as in 1921. In Gilbert Plains municipality there was a steady decrease following 1921. Development in Grandview municipality was slower and it was not until 1941 that the peak was reached. In all three municipalities there was a definite decline in population between 1941 and 1946.

Farm numbers followed the same general trend as the population. Again, Grandview developed more slowly and there was a decrease in all three municipalities following 1941 (Table 2). The scarcity of labour caused by war conditions necessitated a greater use of machinery on the farms. This change was accompanied by a trend towards larger farm units, resulting in fewer farms.

Table 2.- Number of Farms, Dauphin, Gilbert Plains and Grandview  
Municipalities, 1916-1946

Census year	Dauphin	Gilbert Plains	Grandview
		- numbers -	
1916	870	682	415
1921	1,048	811	489
1926	1,021	854	558
1931	1,066	711	598
1936	1,056	773	631
1941	1,105	721	623
1946	1,029	699	572

Source: Census of Canada.

The total acres and improved acres in farms showed a gradual increase until 1941, followed by a slight decrease (Table 3). Between 1916 and 1946 the percentage of the total farm land that was improved increased from 52 per cent to 61 per cent. During the same years the percentage of the improved land that was in wheat decreased from 44 to 25 per cent; other crops and grasses increased from 39 to 44 per cent, and summerfallow increased from 17 to 31 per cent. The increase in summerfallow indicates that as the land becomes older there is a greater need for weed control and moisture conservation.

Table 3.- Total Acres, Improved Acres, Cropland Use and Per cent of  
Total Acres Improved, Dauphin, Gilbert Plains and Grandview  
Municipalities, 1916-1946

Census year	Total acres	Improved acres	Wheat	Other Crops and grass	Summer-fallow	Per cent of total acres improved
			- acres -			- per cent -
1916	419,851	217,150	94,795	84,497	37,858	52
1921	522,165	272,320	110,030	124,378	37,912	52
1926	543,828	299,656	77,514	167,945	54,197	55
1931	556,209	304,101	85,588	139,977	78,536	55
1936	588,203	331,822	85,787	151,863	94,172	56
1941	627,653	381,491	96,522	162,840	122,129	61
1946	604,924	369,635	91,345	163,033	115,257	61

Source: Census of Canada.



From 1916 to 1946, cattle increased slightly in the Dauphin municipality, decreased by about 12 per cent in Gilbert Plains, and increased by about 32 per cent in Grandview (Table 4). During the intervening years there was considerable fluctuation in the numbers, with the low points around 1931 and 1941. Over the general area, horses increased gradually until 1941 but decreased between 1941 and 1946. This decrease was associated with the trend towards greater farm mechanization and the decrease in the number of farms.

Table 4.- Livestock Numbers, Dauphin, Gilbert Plains and Grandview Municipalities, 1916-1946

Census year	Dauphin		Gilbert Plains		Grandview	
	Horses	Cattle	Horses	Cattle	Horses	Cattle
- numbers -						
1916	4,543	10,912	3,799	7,869	2,809	5,299
1921 a/	-	-	-	-	-	-
1926 a/	-	-	-	-	-	-
1931	4,818	10,101	4,039	6,149	2,945	5,109
1936	5,877	11,534	4,398	7,454	3,318	6,579
1941	6,284	10,570	4,459	6,640	3,509	6,349
1946	4,695	11,585	2,905	6,906	2,724	6,973

a/ Data not available.

Source: Census of Canada.

#### THE FARMS AND THE OPERATORS

**Size and Tenure.**- In areas where the fields are restricted in size by physical features and unsuited to large power units, the farms are generally small. This was found to be so in both districts. In the Gilbert Plains area, 45 per cent of the total farms were one-quarter section farms, 35 per cent two-quarters, 11 per cent three-quarters, and nine per cent were four-quarter sections or larger in size. In Sifton, 50 per cent were one-quarter sections, 34 per cent two-quarters and 16 per cent were three-quarter sections or larger.

Farm operators may be divided into three tenure groups, those who own all the land they operate, those who own part and rent part of the land they operate, and those who rent all the land they operate. The distribution of farms by tenure is shown in Table 5.

In these two districts there was a large percentage of owner operators and a small percentage of tenant operators. Where farms are small there is more likelihood of an operator beginning farming by purchasing land than where farms are large, because less capital is required. However, it will be noted that the percentage of tenant operated land is higher in Gilbert Plains than in Sifton. Competition for good land will often raise the value

to a point where many prospective farmers will be unable to purchase land. Yet, preferring to operate good land, they will often rent it rather than buy poorer, cheaper land. Also many farmers about to retire will prefer to retain the ownership of a farm if the rent provides a fair return on the investment. This applies to a greater extent at Gilbert Plains than at Sifton.

Table 5.- Tenure of Operators, Gilbert Plains and Sifton Areas, 1948-49

Tenure	Gilbert Plains		Sifton	
	Number of farms	Per cent of total	Number of farms	Per cent of total
Owner	61	75.3	65	81.3
Part owner	16	19.8	13	16.2
Tenant	4	4.9	2	2.5
All tenures	81	100.0	80	100.0

Land Ownership.- The distribution of ownership of the land is shown in Table 6. Most of the land was privately owned by people residing in the area and the immediate vicinity. Municipal and crown land amounted to less than one per cent of the total in the Gilbert Plains area and 10.5 per cent in Sifton. Considerably more land was owned under the Veterans Land Act in Gilbert Plains than in Sifton.

Table 6.- Land Ownership, Gilbert Plains and Sifton Areas, 1948-49

Kind of ownership	Gilbert Plains	Sifton
- per cent -		
Privately owned:		
Living within 20 miles	85.7	87.0
Living elsewhere in Manitoba	2.9	1.0
Living outside Manitoba	0.8	0.4
Corporate owners	1.4	0.2
Municipal, Provincial and Federal	0.8	10.5
Veterans' Land Act	8.1	0.6
Other	0.3	0.3
Total	100.0	100.0

All the land was occupied in the Gilbert Plains area, but in Sifton 10.4 per cent of the total area was unoccupied at the time of the survey. The stony and undrained parts of the area made up most of the unoccupied land. Some of this land had been privately owned and occupied in the past but was unsuitable for agriculture and is now owned by the municipality.

Methods of Land Acquisition.- Although the original settlers acquired most of their land by homesteading, Table 7 shows that the present operators acquired their farms by other means. Only one homesteader was still there in 1949. In Gilbert Plains most of the present day farm units were purchased. Although eight units were originally acquired through renting there were only four tenant operators in 1949, which indicates a progressive trend from tenant farmers to owners or part-owners. In the Sifton district half of the farms were purchased and almost half acquired as gifts or legacies, and only three by renting. There is little indication of any movement toward ownership by the "tenure ladder" as most of the operators started farming in this area as owners. Of the three farm operators who originally acquired their land by renting, two were still tenants in 1949. The high number of farms that were acquired as gifts or legacies indicates that many sons begin farming with a gift of a parcel of land from their parents.

Table 7.- Methods Used in Obtaining First Parcel of Land,  
Gilbert Plains and Sifton Areas, 1948-49

Method	Gilbert Plains		Sifton	
	Number of farms	Per cent of total	Number of farms	Per cent of total
Homestead	-	-	1	1
Purchased	70	86	41	51
Legacy	3	4	35	44
Rented	8	10	3	4
Total	81	100	80	100

Time of Acquisition.- In both districts, most of the farms have been acquired during fairly recent years (Table 8). The average length of time that the operators have been on their farms was 12.5 years in the Gilbert Plains area and 11.3 years in the Sifton area. In Gilbert Plains 25 per cent of the farms were acquired previous to 1929, 16 per cent between 1929 and 1938 and 59 per cent since 1938; at Sifton, 15 per cent were acquired before 1929, 30 per cent between 1929 and 1938 and 55 per cent since 1938. Of the farms acquired since 1945, nine were operated by service men in Gilbert Plains and four in Sifton.



Table 8.- Time of Acquisition and Age of Operator  
Gilbert Plains and Sifton Areas

Time of acquisition	Gilbert Plains			Sifton		
	Average	Number	Per cent	Average	Number	Per cent
	age of	of	of	age of	of	of
	operator	farms	farms	operator	farms	farms
	- years -	- no. -	- per cent -	- years -	- no. -	- per cent -
Before 1929	57.2	20	24.7	55.8	12	15.0
1929-1938	45.6	13	16.1	46.1	24	30.0
1939-1945	38.4	24	29.6	39.2	23	28.8
1946-1948	35.1	24	29.6	34.4	21	26.2
Average age of operator	43			42		
Total		81	100.0		80	100.0

Farm Operators.- It is to be expected that there would be a relationship between the age of the farm operators and the length of time that they have been on their farms. The average age of the operators was 43 years at Gilbert Plains and 42 years at Sifton.

Over 90 per cent of the operators were born on farms. Sixty-five per cent of the operators in the Gilbert Plains area were born in Manitoba and 17 per cent outside Canada; of the Sifton operators 65 per cent were born in Manitoba and 31 per cent outside Canada. Most of those born outside Canada came from central Europe or the British Isles, and a few were from the United States. Nearly all the operators had attended public school and a few had completed high school. On the average the Gilbert Plains operators had a grade seven education, and the operators at Sifton grade six. Usually the education of the operators' wives was equal to or above that of their husband.

## FARM ORGANIZATION

### Physical Aspects

Land Use.- The farms averaged 300 total assessed acres in the Gilbert Plains area and 257 in the Sifton area (Table 9). In the Gilbert Plains area 77 per cent of the land was improved; in addition 42 per cent of the unimproved land was considered to be arable. The non-arable land was mostly the drainage courses and local wet depressed areas. About 66 per cent of the farm was improved in the Sifton area, and about 40 per cent of the unimproved area was considered arable. Wet depressed areas, swamps, creeks and gravel ridges made up the non-arable land in this district.

Wheat, oats and barley are generally the most important crops in these districts. Crops such as corn and sunflowers are not grown as field crops.

Much the same cropping pattern was followed on the farms of different sizes within each area. However, the larger Gilbert Plains farms usually had a little more wheat and barley and the smaller farms more oats; in Sifton, most of the flax was grown on the larger farms and a little more wheat, oats and barley was grown on the smaller farms.

Table 9.- Land Utilization, Gilbert Plains and Sifton Areas, 1948

Use	Gilbert Plains			Sifton		
	Average	Per cent	Per cent	Average	Per cent	Per cent
	per	culti-	of	per	culti-	of
	farm	vated	total	farm	vated	total
	- acres -	- per cent -		- acres -	- per cent -	
Wheat	67	29.8	-	20	12.0	-
Oats	34	15.1	-	28	16.9	-
Barley	31	13.8	-	15	9.0	-
Flax	5	2.2	-	24	14.5	-
Other crops	11	4.9	-	23	13.9	-
Summerfallow	77	34.2	-	56	33.7	-
Total cropland	225	100.0	75.0	166	100.0	64.6
Farmstead	6	-	2.0	4	-	1.6
Total unimproved land	69	-	23.0	87	-	33.8
Total assessed acres	300	-	100.0	257	-	100.0

Wheat was the major crop in Gilbert Plains where it equalled the combined acreage of oats and barley. Oats and barley were about equal in acreage; flax was relatively unimportant and there was no rye. The other crops consisted chiefly of improved pasture with some clover being harvested for seed. One-third of the cropland was summerfallow, which was greater than the acreage sown to wheat, indicating a three-year crop rotation with some summerfallow being sown to coarse grains.

In Sifton, oats was the largest crop in acreage but flax was the largest cash crop. High flax prices prior to and during 1948 had an influence on the flax acreage for that year. The farmers reported an average of 24 acres of flax per farm in 1948 and only six acres in 1949; of the records taken, 56 farms had flax in 1948 compared to 29 in 1949. The average wheat acreage increased from 20 acres per farm in 1948 to 31 acres in 1949, so that possibly under normal conditions wheat would be the largest grain crop in Sifton and flax would be of secondary importance. About ten per cent of the farms reported rye. The other crops in Sifton were mostly brome grass and clover. Although the maintenance of fertility and soil fibre is a problem in this

district, grasses and legumes were not used extensively in the crop rotation for soil maintenance purposes. The grasses were used largely as permanent pasture and most of the clover was either cut for feed or harvested for seed. Summer-fallow made up 34 per cent of the cropland acres. This indicates a three year crop rotation or shorter as there was considerable improved pasture. The large amount of summerfallow was due possibly to the need for moisture conservation on the lighter soil and for weed control.

Livestock.— The availability of more pasture and a better supply of water permitted the Sifton farmers to keep more cattle than the farmers in the Gilbert Plains area (Table 10). An average of 4.5 cows and 5.7 other cattle per farm were kept in the Gilbert Plains area and 6.5 cows and 7.2 other cattle in the Sifton area. Approximately one out of four farms kept a bull. The prevailing management practice of the cattle enterprise was one that supplied the farm with dairy products and beef, and surplus stock and dairy products were sold. Most of the young stock were sold as calves, especially from the Sifton farms. Only one farm in each of the districts sold a considerable amount of milk. Cream sales averaged \$162 per farm in the Gilbert Plains district and \$242 in the Sifton district.

Table 10.— Average Numbers of Livestock per Farm,  
Gilbert Plains and Sifton Areas, 1948-49

Kind of livestock	:	:
	Gilbert Plains	Sifton
	:	:
	- number -	
Horses	3.0	4.3
Cows	4.5	6.5
Other cattle	5.7	7.2
Sows	0.6	0.6
Other hogs	4.0	3.8
Hens (not including chicks)	113.9	61.1

On most of the farms studied, hog production was only a sideline activity. Just less than half of the Gilbert Plains farms kept an average of 1.5 sows per farm and about the same proportion of Sifton farms kept 1.3 sows. Many farmers preferred to purchase weanlings rather than keep a brood sow. While the hog enterprise was a minor one, it should not be assumed that hogs were raised only for home consumption. In the Gilbert Plains area there were only 58 hogs butchered on the farms surveyed, and there were about 5.5 hogs sold per farm. In the Sifton area there was slightly more than one hog butchered per farm and three were sold.

Sheep were unimportant in these areas. Of the 80 farms in Sifton only two kept any sheep and of the 81 farms in Gilbert Plains only one reported keeping sheep, it having however 67 ewes.

Poultry were more important on the farms of the Gilbert Plains district, where 64 of the 81 farms kept about 135 hens per farm and 17 farms kept no hens. In Sifton, 72 of the 80 farms kept hens which averaged 72 birds per



farm. Fifty-four per cent of the Gilbert Plains farms purchased an average of 190 day old chicks and 70 per cent of the Sifton farms purchased an average of 140 chicks. Ducks, geese and turkeys were not kept in large numbers.

Horses as a Source of Power.- In the Gilbert Plains district there were horses on 67 of the 81 farms and an average of 3.0 on all farms; Sifton had 4.3 horses per farm with 74 of the 80 farms keeping them (Table 10). In Gilbert Plains horses were kept chiefly for part time use or odd jobs and were the exclusive source of power on only two of the farms visited. Sifton, with less arable land per farm, used more horse machinery and averaged a four-horse team on all farms, horses providing the power on 15 out of the 80 farms.

Only seven colts were foaled on the 81 farms at Gilbert Plains and eight on the 80 farms at Sifton during the survey year. In both districts there were fewer horses at the end of the year than at the beginning.

Labour Supply.- These farms are for the most part family farms. The operator, together with family help and possibly some hired help during the busy seasons, supplied the labour. The total labour supply is shown in Table 11. In both areas the total amount of labour used varied directly with the size of farm but there was a variation in the amounts of the different kinds of labour used. In the Gilbert Plains area there was considerably more hired labour and less family labour than there was in the Sifton area. This situation was caused partly by the difference in farm income between the two districts. In Gilbert Plains many sons received a paid wage while at Sifton the income was often insufficient to pay for this type of labour and in many cases it was classed as unpaid.

Table 11.- Hired Labour, Unpaid Family Labour and Operator's Labour, Gilbert Plains and Sifton Areas, 1948-49

Type of labour	Gilbert Plains		Sifton	
	Months	Per cent of total	Months	Per cent of total
Hired	3.58	19.9	0.96	5.9
Unpaid family	2.90	16.1	3.59	21.9
Operator	11.51	64.0	11.85	72.2
Total	17.99	100.0	16.40	100.0
Man equivalents per farm	1.50		1.38	

Farm labour may be hired on a yearly, monthly or daily basis. In Gilbert Plains there was considerable year and month labour on the larger farms but little on the smaller farms. In Sifton, there was only a little year and month labour on larger farms and practically none on the smaller farms. While there was day labour on all size farms in both areas there was much more on the larger farms.

Table 12.- Farm Capital Distribution by Size of Farm,  
Gilbert Plains and Sifton Areas, 1948-49

The farms of the Gilbert Plains area are, as reflected by the investment in machinery, more highly mechanized than those at Sifton. Most of the Gilbert Plains farms had a tractor, about one-third had a combine and nearly all had either a car or truck; in Sifton about two-thirds of the farms had a tractor, only five of the 80 farms reported having a combine and about three-quarters had either a car or truck. At Gilbert Plains the percentage of total investment for real estate, seed, feed and supplies was the same for all size farms. However, as the farms increased in size there was a gradual increase in the percentage of the total in machinery and a decrease in the percentage of the total in livestock. Sifton followed the same general capital distribution trends as Gilbert Plains. The larger farms usually had a higher percentage of the total capital invested in machinery and less in livestock. Investments

in feed and supplies increased with the size of farm, the larger farms carrying over more grain from year to year.

Cash Receipts.- The source of cash receipts and the amounts derived from each are provided in Table 13. The total cash receipts on the Gilbert Plains farms averaged \$6,026 and about half that amount on the Sifton farms. Crop sales were a more important source of receipts at Gilbert Plains than at Sifton, although in both districts about two-thirds of the cash receipts came from this source. As might be expected livestock sales were more important in Sifton than in Gilbert Plains. Other farm produce, consisting mainly of cream and eggs, was also more important to the Sifton farmers.

Table 13.- Cash Receipts by Size of Farm, Gilbert Plains and Sifton Areas, 1948-49

District	:	Size of farm								
and source	:	40-200	:	201-360	:	361-520	:	521 /	:	All
of receipts	:	acres	:	acres	:	acres	:	acres	:	farms
	:		:		:		:		:	
		- dollars -								
<u>Gilbert Plains</u>										
Crop sales		1,331		2,761		4,451		9,712		4,213
Livestock		450		631		750		1,149		715
Other farm produce		410		385		294		492		393
Equipment sales		116		345		176		498		268
Custom work		36		151		152		223		132
Off farm work		12		15		-		-		7
Previous year's crop		25		232		365		640		289
Other		10		10		11		1		9
Total		2,390		4,530		6,199		12,715		6,026
<u>Sifton</u>										
Crop sales		971		1,825		3,438 a/		a/		1,895
Livestock		357		502		763		-		510
Other farm produce		283		344		520		-		366
Equipment sales		82		297		230		-		184
Custom work		43		80		214		-		101
Off farm work		19		8		7		-		13
Previous year's crop		2		40		43		-		24
Other		1		38		94		-		37
Total		1,758		3,134		5,309		-		3,130

a/ All Sifton farms larger than 360 acres are in one group.



The general relationships between size of farm and source of receipts were the same in both districts. Crop sales made up a larger proportion of the receipts on the larger farms and livestock sales a greater proportion of the total on the smaller farms. The percentage of the income derived from sales of oats tended to be constant for all size groups in both districts, but the sales from wheat, barley and flax, which are generally considered to be cash crops, became more important as the farms became larger. On the larger Sifton farms flax sales provided more income than wheat in 1948. Hog sales were larger than cattle sales on the small farms in Gilbert Plains but for all farms the cattle sales were greater than the hog sales. In Sifton the cattle sales were treble the hog sales, a relationship that was fairly constant for all size groups.

In both districts the importance of other farm produce as a source of farm income decreased as the farms increased in size. In the Sifton area, however, the decrease was not as great as it was in Gilbert Plains. The income derived from off farm work was more important to the Sifton farmer. As might be expected, the income derived from the sale of the previous year's crop made up a larger proportion of the cash receipts in the Gilbert Plains area than in Sifton: in Gilbert Plains there was higher grain production and a larger carryover of grain.

Current farm expenses.- Current farm expenses were divided into two classes, cash and non-cash. The cash expenses include such items as taxes, seed, feed, machinery operating costs, and paid labour. The non-cash expenses include such items as unpaid family labour and board of unpaid labour. This unpaid labour is an item for which there is no cash outlay, but without which labour would have to be hired. The unpaid family labour was allowed a wage rate equal to that paid for hired labour in the area.

The total current expenses varied greatly with the size of farm and district. The average current expenses on the farms in Gilbert Plains were \$2,956 and ranged from an average of \$1,367 per farm on the quarter-section farms to an average of \$5,464 per farm on the farms larger than three-quarters (Table 14). The current expenses on the Sifton farms were considerably lower and averaged \$1,702, ranging from an average of \$933 per farm on the one-quarter section farms to \$2,923 per farm on the farms larger than one-half section.

Machinery operating costs, which included the expenses of special equipment, car, truck and equipment repairs, were the largest expenses on the Gilbert Plains farms and made up about 38 per cent of the total cash expenses. Paid labour costs made up about 19 per cent and crop expenses, which included seed, fertilizer and weed spray, made up about 16 per cent. These expenses all increased in amount as the farms increased in size. Money paid out for custom work was less on the larger more highly mechanized farms. Livestock expenses were also lower on the larger farms.

Machinery operating costs, crop expenses and custom work made up the largest part of the total cash expenses at Sifton. The percentage of the total cash expense that was made up by machinery operating costs and crop expenses increased as the farms became larger but the portion due to custom work decreased. Paid labour costs made up about ten per cent of the total cash expenses and were more important on the larger farms. The livestock expenses made up a larger part of the total cash expenses on the smaller farms.

Table 14.- Current Farm Expenses by Size of Farm, Gilbert Plains and Sifton Areas, 1948-49

	Size of farm				
	40-200	201-360	361-520	521 /	All
Item	acres	acres	acres	acres	farms
	- dollars -				
<u>Gilbert Plains</u>					
Taxes	93	155	268	364	208
Livestock expense	114	67	39	100	81
Crop expense	182	309	451	813	412
Real estate expense	37	52	137	133	86
Special equipment	252	563	887	1,380	723
Car, truck	81	101	218	423	191
Equipment repairs	46	73	107	220	104
Custom work	215	333	166	208	230
Miscellaneous	63	82	96	324	131
Paid labour and board	94	411	490	1,172	496
Total cash expenses	1,177	2,146	2,859	5,137	2,662
Unpaid labour and board	190	181	502	327	294
Total current expenses	1,367	2,327	3,361	5,464	2,956
Number of farms	24	20	20	17	81
<u>Sifton</u>					
Taxes	68	129	200	a/	122
Livestock expense	40	37	51	-	42
Crop expense	168	242	436	-	263
Real estate expense	35	69	73	-	55
Special equipment	143	289	668	-	329
Car, truck	48	94	167	-	94
Equipment repairs	45	93	104	-	75
Custom work	168	262	293	-	230
Miscellaneous	26	44	52	-	39
Paid labour and board	20	76	402	-	141
Total cash expenses	761	1,335	2,446	-	1,390
Unpaid labour and board	172	368	477	-	312
Total current expenses	933	1,703	2,923	-	1,702
Number of farms	35	23	22	-	80

a/ All Sifton farms larger than one-half section are in one group.

The unpaid labour expense was ten per cent of the total current farm expenses in Gilbert Plains and 19 per cent in Sifton. On the one-quarter Gilbert Plains farms unpaid labour made up 14 per cent of the total current expenses but was considerably less on the larger farms; at Sifton, the per cent of the total current expense that was made up by unpaid labour was about the same for all farm sizes.

Capital Expenditures.- Capital expenditures averaged \$2,160 per farm in Gilbert Plains and ranged from an average of \$1,317 per farm on the one-quarter section farms to \$4,097 per farm on the farms larger than three-quarters. In Sifton they averaged \$1,896 ranging from an average of \$1,391 per farm on the quarter-section farms to \$2,875 per farm on the farms larger than a half section. The purchases of machinery and equipment was the largest item of capital expenditures, making up two-thirds of the total in Gilbert Plains and three quarters in Sifton. The amount of machinery purchases varied directly with size of farm in both areas. In Gilbert Plains \$304 was spent on new buildings and \$116 for livestock; in Sifton, \$204 was spent on new buildings and \$96 for livestock. Within each area there was little variation in the proportion of expenditures for livestock and buildings for the different farm size groups. Very little additional land was purchased during the record year in either district.

Inventory Changes.- In the Gilbert Plains area the inventory increase averaged \$1,900 per farm for all farms and the inventory decrease averaged \$616 per farm for all farms; in Sifton, the inventory increase averaged \$1,570 per farm for all farms and the inventory decrease averaged \$293 per farm (Table 15). The net inventory change was an average increase of \$1,284 per farm for all farms in Gilbert Plains and \$1,277 per farm for all farms in Sifton. In Gilbert Plains 60 per cent of the net inventory increase came from an increase in machinery equipment, 19 per cent from an increase in land and the remaining 21 per cent was divided among inventory increases in buildings, feed and supplies and livestock. In Sifton 69 per cent of the net inventory increase came from an increase in machinery and equipment, 11 per cent from an increase in land and the remaining 20 per cent was divided among inventory increases in buildings, feed and supplies and livestock. Only two operators in Gilbert Plains and three operators in Sifton reported buying land during the year of the survey. Most of the land inventory increase was due to new fences, wells or clearing and breaking land. Much of the increase in the building inventory was due to hydro installations. There was very little change in the seed inventories for any size group of farms in either area.

Operating Statement.- Several measures may be used to measure the success of a farm business. Four common measures are: net farm income, labour income, labour earnings, and farm surplus.

"Net Farm Income" is the difference between the total farm receipts and the total farm expenses with the changes in inventories taken into account. Net farm income is therefore the return to capital and the operator's labour and management. It was \$2,194 for all farms in Gilbert Plains and \$811 for all farms in Sifton (Table 15).



a/ All Sifton farms larger than one half section are in one group.

"Labour Income" is the operator's net farm income with the interest on the farm capital deducted. The interest was calculated at five per cent. While many operators are able to supply their own capital, others may carry on their farm operations largely on borrowed capital. Whether capital is borrowed or not the operator is justified in charging interest on all capital against the farm business. Therefore labour income is the return to the operator for his labour and management. Because of the higher capital investment in Gilbert Plains, there was a greater deduction for interest charge in that district. With the exception of the one-quarter section farms, labour incomes for all the farm size groups were greater in Gilbert Plains than in Sifton. It was \$1,164 for all farms in Gilbert Plains and \$344 in Sifton.

"Labour Earnings" is the labour income plus perquisites. The perquisites are the value for the use of the house and for all farm produce consumed on the farm. The farm produce was valued at market prices and the use of the house at 12 per cent of the value. The perquisites averaged \$640 for all farms in the Gilbert Plains area and \$527 per farm in the Sifton area. In both areas perquisites increased slightly as the farms increased in size. Labour earnings closely represent the entire income of the operator and may be used as a measure when comparisons are made between operators of different farms, types of farms or areas, and between farmer operators and urban dwellers. The labour earnings averaged \$1,804 per farm for all farms in Gilbert Plains and \$871 per farm in the Sifton area.

The fourth measure of farm success is "farm surplus". This is calculated by taking the net farm income plus the allowance for unpaid labour and deducting the family living expenses. This is the amount that remains after the operator has met all operating, maintenance, depreciation, and living costs; the amount which the operator may use to reduce his indebtedness or increase his savings. The farm surplus for all farms was \$987 for Gilbert Plains and \$38 for Sifton. In both districts, the farm surplus for the one-quarter size group represented a loss.

A farm business is subject to many physical hazards such as drought, hail, insect infestations, or animal disease. Losses resulting from these causes are often beyond the farm operator's control so that it is to be expected that many farms will occasionally show a deficit. In the short run when a deficit occurs there is either an increase in debt, a decrease in savings or the deferment of interest on capital, depreciation, and unpaid labour charges. In the long run all costs must be met, no farm business can long continue with a minus net return.

Living Expenditures.— Cash living expenditures, being closely related to farm income, were highest at Gilbert Plains. In Sifton they averaged \$1,085 on all farms and ranged from an average of \$916 per farm on the one-quarter farms to \$1,407 per farm on the farms larger than one half section. On the Gilbert Plains farms they averaged \$1,500 on all farms and ranged from \$939 on the one-quarter farms to \$2,364 on the farms larger than three-quarter sections. In both areas living expenses were about the same on the small farms which was in direct relationship to the net income of these farms. However, more money was spent on living as the farms increased in size. The large farms in Gilbert Plains, having considerably larger income than those

in Sifton, had considerably larger living expenses.

The most important item in the cash living costs was the amount paid out for feed and fuel (Table 16). This averaged about 32 per cent of the total cash living costs for all farms in both areas; and as the farms increased in size the importance of this item in the total decreased slightly. About the same amount was spent for clothing in both areas but about twice as much was spent in the Gilbert Plains area for such items as new furnishings, education and personal, which includes expenditures for amusement, holidays and income tax. About one-fifth of the operators had life insurance in the Sifton area and nearly one half in the Gilbert Plains area. A part of the operating costs of the car and truck was charged against the living expenditures. This was a personal expense that was incurred by the family independently of the farm business; it amounted to \$105 for all farms at Gilbert Plains and \$68 at Sifton.

Table 16.- Living Expenses, Gilbert Plains,  
and Sifton Areas, 1948-49

Item	Gilbert Plains	Sifton
	All farms	All farms
	- dollars -	
Groceries and fuel	486	353
New furnishings	89	54
Clothing	223	230
Health	69	83
Church and charity	34	18
Education	74	41
Personal	381	230
Life insurance	39	8
Auto (personal use)	105	68
Total cash living costs	1,500	1,085
Perquisites	640	527
Total living expenses	2,140	1,612
Number of farms	81	80

When the perquisites were added to the cash living costs it made a total living expense of \$2,140 for all farms at Gilbert Plains and \$1,612 at Sifton. These totals indicate a relatively high plane of living.

Farm Indebtedness.- The average indebtedness for all farms in Gilbert Plains was \$1,961 per farm and ranged from an average of \$1,372 per farm on the one-quarter section farms to \$3,159 per farm on those larger than three-



quarter sections (Table 17). For all farms in the Sifton area the indebtedness was \$667 and ranged from \$644 per farm on the one-quarter section farms to \$839 per farm on the farms greater than one-half section.

Table 17.- Farm Indebtedness at End of Year, Gilbert Plains and Sifton Areas, 1948-49

Items	Gilbert Plains	Sifton
- dollars -		
Land	1,434	239
Equipment	152	94
Taxes	30	89
Bank	113	117
Personal	126	96
Other	106	32
Total	1,961	667
Number of farms	81	80

Agreements of sale and land mortgages made up about 73 per cent of the total debt in the Gilbert Plains area and 36 per cent in the Sifton Area. As the Gilbert Plains farms increased in size there was an increase in the land debt per farm while in Sifton there did not appear to be any relationship between the land debt and farm size. Gilbert Plains, with a higher machinery investment per farm than Sifton, also had a larger equipment debt per farm. This debt amounted to \$152 for all farms in Gilbert Plains and \$94 in Sifton. Within each area, however, the equipment debt was about the same for the different farm sizes.

Tax arrears in both areas were considerable. In Sifton, this debt averaged \$89 for all farms and \$78 for the one-quarter farms, which was about equal to one year's taxes per quarter section. Part of the tax arrears may date from 1947, in which year many farmers suffered a total crop loss due to flooding. Possibly, with lower farm returns some of the farms now privately owned would eventually be taken over by the municipality. As already mentioned, considerable land is now owned by the municipality in the Sifton area.

During the record year the land debt was reduced by \$193 per farm in Gilbert Plains and \$42 in Sifton; the machinery and equipment debt increased by \$119 in Gilbert Plains and \$81 in Sifton. A small part of the indebtedness in both areas was for fuel and other short time operating expenses that would be paid from month to month. The farm operators considered these charge accounts more as a convenience for purchasing current supplies than as a debt to the farm business.

For all farms in Gilbert Plains the ratio of assets to liabilities was about 12 to 1. On the one-quarter section farms the ratio was eight to one but increased on the larger farms. In Sifton the ratio was 17 to 1 and was also greater on the larger farms.

Net Worth and Changes in Net Worth.- The farmers' total assets averaged \$24,241 for all farms in Gilbert Plains and \$11,362 in Sifton. Non-farm assets, which were mostly cash on hand, non-agricultural investments and household goods, averaged \$3,320 for the Gilbert Plains farmers and \$1,399 for those at Sifton. On the smaller farms the household goods made up most of the non-farm assets while the non-agricultural investments were usually found on the larger units.

When the size of the farms is considered, the net worth per farm was fairly large, averaging \$22,280 per farm in Gilbert Plains and \$10,695 in Sifton. As would be expected the net worth increased as the farm increased in size. The net worth statement and change in net worth per year is shown in Table 18.

Table 18.- Total Assets, Liabilities, and Change in Net Worth by Size of Farm, Gilbert Plains and Sifton Areas, 1948-1949

	Size of farm				
	40-200	201-360	361-520	521 /	All
	acres	acres	acres	acres	farms
	- dollars -				
<u>Gilbert Plains</u>					
Total assets	11,412	19,001	27,390	44,814	24,241
Liabilities	1,372	1,574	2,123	3,059	1,961
Net Worth	10,040	17,427	25,267	41,755	22,280
Net worth at start	4,525	4,976	10,079	5,321	6,175
Change in net worth	5,515	12,451	15,188	36,434	16,105
Change per year	726	929	1,186	2,013	1,288
Number of farms	24	20	20	17	81
<u>Sifton</u>					
Total assets	6,660	11,594	18,601	a/	11,362
Liabilities	664	509	839	-	667
Net Worth	5,996	11,085	17,762	-	10,695
Net worth at start	2,379	3,719	4,051	-	3,224
Change in net worth	3,617	7,366	13,711	-	7,471
Change per year	411	585	914	-	644
Number of farms	35	23	22	-	80

a/ All Sifton farms larger than one-half section are in one group.

In Gilbert Plains the average net worth at start was \$6,175 and ranged from an average of \$4,525 per farm on the one-quarter farms to \$5,321 per farm on the farms larger than three-quarter sections. The operators of the largest farms were not the ones who started farming with the most capital. The average gain per year of operation for all farms was \$1,288 and was about three times as large on the largest size group as on the one-quarter farms. The net worth at start averaged \$3,224 at Sifton and was \$2,379 per farm on the one-quarter farms and \$4,051 per farm on the farms over a one-half section. The average change per year was \$644 and the large farms had about twice as large a yearly gain as the small farms.

A little over one half of the Gilbert Plains operators started farming since 1939. These farms showed an average annual gain in net worth of \$1,744. About one-fifth started between 1930 and 1939 inclusive and showed an annual gain of \$1,772. Those who started before 1930 showed an annual net gain of \$1,017. Slightly less than one-half of the Sifton operators started farming since 1939 and had an average annual gain of \$1,046. About one third of the operators started between 1930 and 1939 and had an average gain of \$826 per year. The operators who started previous to 1930 showed an average gain of \$381 per year.

#### FARM ORGANIZATION BY TYPE OF FARM

For the most part, this area can be broadly described as a mixed or diversified farming area. The farms are organized as commercial farms and the type of production is wheat specialty with beef cattle and swine.<sup>1/</sup>

There are several factors which influence the type of farming that will be carried on in any area and the type of organization of any farm or group of farms. Some of the more important factors are:

1. The physical characteristics of the land. Grain production is usually carried on with good, cultivable land that has good topography and high arability. Livestock production, particularly cattle, is usually associated with poorer land, or where poorer land suitable for pasture is available.
2. In some cases the preferences and abilities of the operator may determine the type of production carried on. Some operators may possess skill in handling livestock and may prefer caring for livestock to raising grain. It is often the case where the operator may combine cereal grain production with a fair sized pig or poultry enterprise, while his neighbor with the same amount and kind of land, the same markets and prices available to him, only raises grain and keeps enough livestock to satisfy household needs.

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<sup>1/</sup> Types of Farming in Canada, by S.C. Hudson, et al. December 1949. Publication 825, Economics Division, Marketing Service and the Census Division, Dominion Bureau of Statistics.



3. Available markets also often affect type of farming and farm organization. For instance, fluid milk, a very perishable product, is usually produced quite close to the place where it is sold and consumed.

Scrutiny of the records showed that there were differences in the way these farms were organized. There was a group of farms that were small, poorly organized, and where some operators spent a considerable portion of their time in off-farm work, and where the farm was being operated close to a subsistence level. These farms were called "subsistence farms" and were grouped separately. Subsistence farms were farms where the value of receipts from non-farm sources plus the value of home consumed farm produce was greater than the current farm receipts. There were 11 of these farms.

On the farms that were operating on a commercial basis, cereal grain production was usually the major enterprise, but there were some farms where livestock production was more important than grain production. To be able to compare the organization of these different types of farms and the effects of the organization on earnings, they were grouped according to percentage of receipts from livestock or grain. All farms where more than half of the current farm receipts came from crop sales were called "grain farms". Farms where more than half the current receipts came from livestock and livestock produce were called "livestock farms".

#### The Commercial Farms

Although the farms were grouped into these two broad classes there was considerable overlapping of types of enterprises. Few of the grain farms for instance specialized entirely on grain production and some of the larger ones had good sized livestock enterprises. Likewise, most of the livestock farms relied quite heavily on grain for a considerable part of their income; and in many cases spent a great deal of their time on grain production, but marketed their grain by feeding it to livestock. The data in the following sections shows the differences in farm organization and use of farm resources on the two types of farms.

Land Use.— The land use pattern indicates that the two types of farms were located on soils and lands of different physical characteristics, as the operators used their land differently. The grain farms were larger and had nearly three-quarters of their total land area under cultivation (Table 19). The livestock farms were less arable farms, not much more than half the size of the grain farms, with less than two-thirds of it improved. The grain farms used nearly a third of their land for wheat and flax as cash crops and about 25 per cent for coarse grains, some of which were also sold. As would be expected wheat and flax made up a smaller percentage of the cropland, 23 per cent, on the livestock farms with coarse grains the most important crops. Other crops, mostly clover and improved pasture, were relatively more important on the livestock farms. Summerfallow occupied a third of the land on both types of farms.

Table 19.- Land Utilization by Type of Farm, Gilbert Plains and Sifton Areas, 1948-49

Use	Type of farm			
	Grain		Livestock	
	Average	Per cent of	Average	Per cent of
	acres	cropland	acres	cropland
Wheat	70	24	23	15
Oats	42	15	32	20
Barley	35	12	15	10
Flax	23	8	12	8
Improved pasture	10	3	10	6
Other crops	14	5	12	8
Summerfallow	94	33	51	33
Total cropland	288	100	155	100
Unimproved acres	108	-	96	-
Total Assessed acres	396	-	251	-
Number of farms	111	-	39	-

Livestock.- While more livestock was kept on the livestock farms than on many of the grain farms some of the grain farms had fairly large livestock enterprises. For instance nine grain farms had herds of 25 or more head of cattle; on the other hand, 14 grain farms kept no milk cows and 11 farms had no cattle at all. While the livestock farms had more livestock of all classes than the grain farms, the most significant difference in the livestock enterprises was in the number of cattle (Table 20). More unimproved land on the livestock farms and less income from their limited crop acres encouraged diversification on these farms.

Table 20.- Average Numbers of Livestock per Farm by Type of Farm, Gilbert Plains and Sifton Areas, 1948-1949

Kind of livestock	Type of farm	
	Grain	Livestock
	- number -	
Horses	3.9	4.6
Cows	5.4	7.2
Other cattle	7.3	8.4
Sows	.6	.8
Other hogs	4.1	4.8
Hens	80	111
Number of farms	111	39

Some dairying was done on nearly all farms. There was not a great deal of difference in the size of the hog enterprises. Horses were more important on the livestock farms, supplying more field power.

Farm Capital.- The average farm capital on the grain farms was nearly double that on the livestock farms with the biggest difference arising in the differences in size of farm and total real estate value (Table 21). The livestock farms had a little higher investment in livestock; the grain farms had about twice as much invested in machinery and equipment as the livestock farms did. The seed investment was in relation to the cultivated acres but the grain farms had more investment in feed and supplies as they had a larger carryover of grain.

Table 21.- Capital Investment by Type of Farm, Gilbert Plains and Sifton Areas, 1948-49

Capital items	Type of farm	
	Grain	Livestock
- dollars -		
Real estate	10,279	5,082
Livestock	1,567	1,838
Equipment	5,257	2,674
Feed and supplies	706	499
Seed	473	250
Total	18,282	10,343
Number of farms	111	39

Labour Supply.- The grain farms, with a larger total farm business than the livestock farms, employed more labour (Table 22). The source of labour on the two groups of farms differed considerably, the grain farms having hired and unpaid family labour in about the same amounts. The livestock farms, on the other hand, seemed to rely more heavily on family labour and hired only a little more than a month's labour. The operators on both types of farms put in about the same amount of time on their farms, although in a few cases the grain farm operators were on their farms during the summer months only, spending the winter in non-farm activities. Most of the hired labour was hired by the month or day and used during the seeding and harvesting seasons with few farms of either type hiring labour throughout the year. On the livestock farms the labour requirements would be more constant over the entire year and so the family would be able to make a greater labour contribution than on grain farms.



Table 22.- Hired Labour, Unpaid Family Labour, and Operator's Labour by Type of Farm, Gilbert Plains and Sifton Areas, 1948-49

Labour	Type of farm	
	Grain	Livestock
	- months -	
Hired labour	3.89	1.29
Unpaid family labour (excluding operator)	3.74	4.76
Operator	11.67	11.90
Total labour	19.30	17.95
Man equivalents	1.61	1.50
Number of farms	111	39

Receipts.- The grain farms, with total cash receipts of \$5,647, had more than double the receipts of the livestock farms. The total cash receipts and the amounts derived from each source are shown in Table 23. Crop sales made up 72 per cent of the total farm receipts on the grain farms. Wheat was the most important of the crops, making up more than half of the crop sales. Considerable flax was grown, it being about equal to the combined values of oats and barley. Livestock sales made up ten per cent of the total cash receipts, with cattle bringing the largest part. Farm produce sales averaged \$325 per farm.

Table 23.- Cash Receipts by Type of Farm, Gilbert Plains and Sifton Areas, 1948-49

Receipts	Type of farm			
	Grain		Livestock	
	-dollars-	-per cent-	-dollars-	-per cent-
Crop sales	4,078	72.2	956	36.1
Livestock	581	10.3	823	31.1
Farm produce	325	5.8	590	22.3
Other farm income	663	11.7	280	10.5
Total cash receipts	5,647	100.0	2,649	100.0
Number of farms	111		39	

On the livestock farms crop sales made up 36 per cent of the cash receipts. Wheat and flax sales were about equal in amount. Livestock and farm produce sales made up nearly 54 per cent of the total. Farm produce sales were nearly twice as large on these farms as on the grain farms.

Expenses.— Current expenses on the grain farms were double those on the livestock farms (Table 24). Special equipment costs were the largest item of expense on both types, but were proportionately larger on the grain farms. While hired labour was the second largest item on the grain farms it was fifth on the livestock farms, indicating that family labour was more important on the livestock farm and also that it is possible to employ family labour more easily on livestock farms and reduce hired labour requirements.

Livestock farms had proportionately higher custom work expenses. As custom work charges are mostly for operations done by machines they can be considered to be much like operating costs of special equipment. While livestock farms have higher custom work charges they still were able to keep these costs plus the costs of operating special equipment and equipment repairs per acre of cropland at a lower figure than the grain farms, it being \$3.98 per acre of cropland on the livestock farms and \$4.18 on the grain farms. This would seem to indicate that while the grain farms can effect economies in operation of the farm equipment because of the scale of their operations, it is possible for the smaller livestock farms to reduce similar costs by hiring some work done rather than having to spread fixed costs of machinery operation over a relatively small acreage. In addition, the livestock farms used more horse power and had a lower operating cost for special equipment per cultivated acre, amounting to \$2.12 per acre compared with \$2.94 per acre on the grain farms.

Table 24.— Current Farm Expenses by Type of Farm, Gilbert Plains and Sifton Areas, 1948-49

Expenses	Type of farm	
	Grain	Livestock
	- dollars -	
Taxes	192	115
Livestock expenses	52	94
Crop expenses	404	219
Real estate	81	45
Special equipment	848	329
Equipment repairs	105	61
Custom work	251	213
Miscellaneous	102	53
Wages and board of paid labour	422	102
Total cash expenses	2,457	1,231
Wages and board of unpaid labour	291	383
Total current expenses	2,748	1,614
Number of farms	111	39

Operating Statement.- The differences in average size and productivity of the two types of farms is reflected in the operating statement (Table 25). The grain farms showed considerably higher returns, by all four measures of success, than the livestock farms. The net farm income was \$1,929 on the grain farms which was almost three times as high as that on the livestock farms. Although the grain farms had nearly twice as large a deduction for interest on capital there still remained a larger labour income on these farms. The livestock farms used more perquisites, which when added to the labour income, reduces the differences in labour earnings between the two types of farms.

Table 25.- Operating Statement by Type of Farm, Gilbert Plains and Sifton Areas, 1948-49

	Type of farm	
	Grain	Livestock
	- dollars -	
Total receipts <u>a/</u>	7,582	4,136
Total expenses <u>a/</u>	5,653	3,412
Net farm income	1,929	724
Labour income	1,038	235
Labour earnings	1,630	815
Farm surplus	816	-11
Number of farms	111	39

a/ Includes inventory adjustments.

Probably the most significant feature of the operating statement shows up in the farm surplus figures. Here the livestock farms show a light loss. This small negative earning indicates that the small farms, even when diversifying with livestock and with relatively favourable prices for farm produce, do not show a surplus above operating and living expenses that would permit the operator to increase savings, expand operations or raise his standard of living.

Farmers' Net Worth and Progress.- The total assets and net worth on the two types of farms were generally in the same relationship as the size of farm and earnings, namely about twice as much on the grain farms (Table 26). Similarly the gain in net worth for the period of farm operation was likewise about double on the grain farms. A significant feature was the fact that the livestock farmers had been operating their farms for 21.2 years while the grain farmers had been on their farms for only 12.3 years. Average annual gain on the grain farms was about three and a half times as large as that on the livestock farms.

Table 26.- Total Assets, Net Worth Gain and Change in Net Worth per Year by Type of Farm, Gilbert Plains, Sifton Areas, 1948-49

	Type of farm	
	Grain	Livestock
	- dollars -	
Total assets	21,042	12,020
Liabilities	1,562	789
Total net worth	19,480	11,231
Net worth at start	5,013	4,215
Changes in net worth during years of operation	14,467	7,016
Change in net worth per year of operation	1,176	331
Number of farms	111	39

Type of Farm and Efficiency.- It is significant that the farm surplus on the 39 livestock farms, nearly a quarter of the farms studied, was about zero. While a more detailed analysis of factors influencing farm success follows in a later section, it is worthwhile to compare some of the more common efficiency measures on the two types of farms.

First of all, the livestock farms are smaller in area, particularly in the number of acres available for crops. If a farm is limited or fixed in area and it is desired to increase the volume or size of business, it can be done by increasing crop yields, selecting, where possible, higher return crops, or increase output and sizes of the livestock enterprises; in other words diversify and intensify farm operations. The grain farms had a total of 11.0 animal units on 396 total acres or 2.8 animal units per 100 acres of land; the livestock farms had 14.6 animal units on 251 acres or 5.8 per 100 acres or about twice as intensive use of the land by livestock. Livestock investments did not differ greatly. Livestock returns per \$100 investment in livestock were \$77 on the grain farms compared to \$98 on the livestock. However, if it is considered that many of the grain farms keep some livestock purely for home consumption in which the convenience factor is more important to the operator than efficient production, it could be assumed that efficiency of livestock production on the grain farms is probably as high as on the livestock farms. Or stated in another way, and which is probably more significant, livestock production on the livestock farms is not as efficient as it should be.

A measure of the overall quality of livestock is not available, but if the average livestock inventory values for the two types of farms are any criterion of quality, the grain farms had the better livestock with an average investment of \$142 per animal unit compared to \$126 per animal unit on the livestock farms.



To get the highest returns from the land, yields must be maintained and all the land in the farm should be in its best use. This means that crops must be selected and used on the land and in the rotation where they can produce to the best advantage. The grain farms had average crop yields nearly ten per cent higher than yields on the livestock farms. The grain farms sold \$32 worth of flax and wheat per acre seeded to those crops, and the livestock farms sold \$22 worth per seeded acre.

It was stated earlier than the livestock farms suffer because of a limited size. If we measure size in terms of man work units available on the farm the livestock farms still compare unfavourably, having only 201 productive man work units 1/ as compared with 244 on the grain farms.

Efficient use of land resources and well organized productive livestock enterprises help to get and maintain a good volume of business and hence higher earnings. Probably equally important in getting high returns is to get full and efficient use of labour and other capital resources available. The full costs of the labour force on the farm should be measured not in terms of the cash outlay for hired labour but what it takes to pay and keep the working family members as well as the hired help. The labour force on the livestock farms was slightly less than that on the grain farms but it was made up of more family labour. Measured in terms of efficiency the livestock farm worker handled 103 productive man work units per year while the grain farm worker handled 152; or put in terms of acres and livestock handled, the former looked after 103 acres of cropland and 9.7 animal units while the latter handled 179 acres of cropland and 6.8 animal units per man. According to this the grain farms, despite the fact that some of them do not keep any or very many livestock, and work only during the crop growing season, have more productive work than the livestock farms. It would appear that much of the labour is underutilized on the livestock farms; if labour is to be used more efficiently it would be desirable to increase the livestock enterprises, or the quality of the present enterprises.

### The Subsistence Farms

The subsistence farms were generally a poor type of farm and poorly organized. They averaged 168 acres in size with a little more than half of it under cultivation. Oats was the major crop occupying a fifth of the cropland, with barley next in importance followed by wheat. There were about three acres per farm in grasses and improved pasture. Half of the cultivated land was in summerfallow which is high. There seemed to be no reason why such a high proportion of the land should be in fallow, except that weeds were possibly a problem.

Seven of the 11 farms had a four-horse team. Between four and five cows, about 60 hens and a few hogs were kept. The total capital investment was \$5,370 which was about half of that on the livestock farms and one-quarter that on the grain farms. Four farms had a tractor. Machinery and equipment

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1/ The number of productive man work units on a farm represents the number of 10 hour days spent on productive farm activity during a year of farm operation.

investments made up about 20 per cent of the total; investment in livestock was about \$1,100 per farm.

The operator and his family provided most of the labour. Unpaid family labour and hired labour made up 2.56 months. In general, the operators resided on their farms the entire year and contributed most of the labour.

Receipts from all farm sources were \$779. Crop sales made the largest single contribution to the farm income, being 34 per cent of the total receipts. Livestock sales were \$200 and other farm produce brought \$185 per farm. Other farm income made up 16 per cent of the total. The income from off-farm sources averaged \$731 per farm.

The average cash expenses were \$557. Crop expenses were the largest item followed closely by special equipment and custom work costs. The real estate expense was smaller than for the other farm types. Paid labour costs were \$65 per farm and the value of the unpaid labour was \$133.

The extent to which the subsistence farms are dependent upon non-farm income is indicated by a negative farm surplus of \$646 per farm. With total assets of \$6,190 and liabilities of \$740 the average net worth was \$5,450. During the years that these farms were in operation, an average of 10.4 years, they were able to increase their net worth by \$2,068, or \$199 per year. This increase in net worth may seem to contradict the defining of these farms as subsistence farms, but the gain probably has been made from the fairly substantial income from non-farm sources. Increase in inventory values resulting from changes in price levels were also probably responsible for part of the gain.

#### FACTORS AFFECTING FARM INCOME

Many factors come into play in determining the success of a farm business. Some of these factors will pertain to inherent characteristics of the area and as such can be little influenced by the operator. There are others, however, that are associated with the operation of the farm which will be either completely or partly within the operator's control. Returns normally differ among farms in the same localities, even though such factors as soil productivity, weather, prices, types of crops, and livestock are generally common for all farms. This variation in income within homogeneous areas is largely a result of differences in management efficiency. Some of the major management problems are: determining the most suitable size of business, getting and maintaining high crop yields and returns from livestock, and using labour and capital efficiently.

Size of Business.— One of the most important factors influencing the farm income is the overall size of the business. Considering that the farm receipts in both areas are mostly derived from grain sales, acres of cropland can be used as a suitable measure of size of business.

In Gilbert Plains the labour earnings increased noticeably as the farm

business increased in size (Table 27). Labour earnings ranged from an average of \$642 per farm for the smallest farms to \$3,300 per farm on the largest farms. About twice as much livestock was kept on the largest farms as on the smallest ones. The larger farms generally had the highest crop yields while the smaller farms had the most productive livestock per acre of cropland and the best production from livestock. While it would generally be expected that the smaller farms would operate more intensively and show a higher return per acre than the larger farms, it was not the case on these farms. The larger farms had the largest returns per acre of cropland as they were able to get lower costs for such things as machinery operations, labour costs and also get higher yields of crops through more timely and better field operations. The small farms had to spread high machinery costs over too few acres.

Table 27.- Relation of Size of Business to Labour Earnings,  
Gilbert Plains and Sifton Areas, 1948-49

Size of business (acres of cropland)	Number of farms	Cropland acres	Productive animal units	Labour earnings
<u>Gilbert Plains</u>				
0-150	24	118	8.1	642
151-275	23	227	10.0	804
276 and over	34	466	14.2	3,300
<u>Sifton</u>				
0-150	35	95	8.5	662
151-275	30	197	12.5	844
276 and over	15	386	19.5	1,411

Although less marked, the same relationship existed on the Sifton farms between the size of business and labour earnings with the earnings ranging from an average of \$662 per farm on the farms below average size to an average of \$1,411 per farm on those above average. The smaller farms had the most livestock per cropland acre and were above average in livestock efficiency while the larger farms had the highest crop yields. As the farms increased in size the labour earnings did not increase proportionately to the increase in acres so that the smaller farms had the highest earnings per cropland acre. The small farms in this area got higher returns per acre by more intensive livestock production; in many cases they still used horses for field power which kept operating costs down.

The war and immediate postwar years were relatively favourable to farm production as they were years of rising demand and rising prices for farm products. During such times, the larger farm unit is in a more favourable position and therefore it is of advantage for the operator to expand his business as much as possible. However, prices may fall without a corresponding reduction in production costs and when this condition occurs the smaller



sized business is less likely to have a large deficit.

The size of a farm business is normally limited to the managerial capacity of the operator. In these two areas it was seldom that a farm business included more than one all-year-round paid employee in addition to the operator and his family.

**Crop Yields.**- Generally a direct relationship existed between crop yields and labour earnings in both districts, that is, the higher the yields the greater the labour earnings. The yields are expressed in terms of crop indexes. The crop yield index takes into account acres and yields of wheat, oats and barley. An index of 100 indicates an average yield and is computed separately for each district. The crop yields in Gilbert Plains and Sifton for the year 1948 may be considered normal when compared to the long time average for the districts. As the group of farms in Gilbert Plains with the lowest yields were below average in acres of cropland and in number of livestock, all of the differences in labour earnings can not be attributed to the lower yields. This group had average labour earnings of \$540. The group of farms with above average yields had labour earnings of \$2,456 per farm. The farms with average yields had the highest labour earnings, \$2,486, but had considerably more cropland acres and more livestock than the farms with the highest crop yields, which probably explains why their earnings were higher.

In Sifton the farms with the lowest crop yield index were also below average in cropland acres and livestock. The farms with the highest crop yields were above average in cropland acres and about average in animal units. The labour earnings ranged from an average \$454 per farm on the farms below average in crop yield to \$1,452 per farm on the farms above average.

Table 28.- Relation of Crop Yields to Labour Earnings,  
Gilbert Plains and Sifton Areas, 1948-49

Crop yield index	Number of farms	Average crop yield index	Cropland acres	Productive animal units	Labour earnings
<u>Gilbert Plains</u>					
0-85	28	72	220	8.6	540
86-110	27	99	368	12.9	2,486
111 and over	26	127	299	12.1	2,456
<u>Sifton</u>					
0-85	34	74	166	11.6	454
86-110	25	104	199	12.6	949
111 and over	21	137	210	12.3	1,452

Although crop yields influenced the income on all types of farms, the effect was more pronounced on the grain farms. The Gilbert Plains farms, being more



dependent on grain than those in the Sifton area, showed the largest variations in labour earnings with variations in crop yields.

With high crop yields one may normally expect a relatively large net income from a moderately large sized grain farm. During the year under review, prices were favourable to the producer but with unfavourable prices many of these low grain yield farms would show a deficit instead of a profit.

Efficiency in Livestock Production.— Although the receipts from livestock and livestock products were considerably less than the receipts from grain in both districts, the livestock enterprises were sufficiently large that variations in livestock output would materially affect labour earnings. This was found to be so. The higher the efficiency of livestock production the greater were the labour earnings although labour earnings were less affected by the livestock efficiency than by variations in crop yields. Livestock efficiency may be measured by the relationship of livestock returns (sales of livestock plus the value of all livestock products and inventory changes) to the investment in livestock at the beginning of the year. Long time records are not available to show the relative livestock efficiency for the study areas. However, for the year concerned, the returns from productive livestock were \$93 per \$100 invested in livestock in the Gilbert Plains area and \$81 in Sifton.

The farms below average efficiency in Gilbert Plains had \$1,226 labour earnings per farm (Table 29). These farms were a little above average in cropland acres but considerably below average in crop yields, investment in livestock and animal units per 100 acres of cropland. The farms with average livestock efficiency had the highest labour earnings because they were high in cultivated acres, crop yield index, and livestock investment.

Table 29.— Relation of Livestock Efficiency to Labour Earnings,  
Gilbert Plains and Sifton Areas, 1948-49

Returns from livestock per \$100 investment	Number of farms	Productive animal units	Livestock investment	Cropland acres	Labour earnings
			- dollars -		- dollars -
<u>Gilbert Plains</u>					
0-70	25	9.2	1,410	323	1,226
71-100	23	13.6	1,772	314	2,223
101 and over	33	11.1	1,284	260	1,949
<u>Sifton</u>					
0-70	27	12.2	1,742	236	851
71-100	35	12.3	1,442	173	725
101 and over	18	11.4	1,106	144	1,184

As livestock efficiency increased on the Sifton farms the cropland acres and investment in livestock decreased. The group of farms above average in livestock

efficiency, although having the highest crop yield, were below average in cropland acres and livestock investment so that there was not much difference in labour earnings for the different groups.

Production from livestock is associated with quality of livestock and feed costs; with cattle, pasture is required. Livestock of inferior quality usually returns little profit for management, feed and capital. While pure bred stock is not stressed, good grade animals require no more feed, shelter and care than poor stock and yet show greater returns. Demand for livestock and livestock products is fairly constant all year round but the supply is usually greater at definite times of the year which results in price fluctuations. Many operators increase their livestock returns by taking advantage of seasonally high prices.

Efficiency in the Use of Labour.- It is important from a high earning standpoint that production be obtained at the least possible cost per unit of output. In this regard, efficiency in the use of labour is an influential factor. A high degree of efficiency in the use of labour may be achieved through good crop yields, high livestock production, use of labour-saving machinery, full use of the labour force throughout the year, and a well planned farm layout.

The productive man work units of a farm represent the number of ten hour days spent on productive farm activity during one year of farm operation. This measure brings acres and animals to a common unit, namely, days of work required at average working rates for a man of average skill. Productive man work units per man represent the labour output per worker which is a useful measure of labour efficiency on different types of farms.

The labour earnings varied directly with the labour efficiency on the Gilbert Plains farms ranging from an average of \$461 on the farms below average efficiency to \$2,607 per farm on the farms above average (Table 30). Measured in cultivated acres and productive animal units, the amount of work accomplished per man varied from 95 acres and 5.0 animal units handled per man on the least efficient group to 261 acres and 8.5 animal units per man on the most efficient farms. The farms above average efficiency had about \$1,400 greater labour earnings per man than those below average.

The same general relationship existed between the labour efficiency and labour earnings in the Sifton area, although the difference was not as marked. The range in labour earnings was from \$396 per farm on the least efficient farms to \$1,091 per farm on the most efficient farms. As the labour efficiency increased there was a marked increase in productive work units per farm. The amount of work accomplished per man varied from 82 cropland acres and 4.1 productive animal units on the farms below average to 195 acres and 12.7 units of livestock on the farms above average. Measured in labour earnings per man, there was a difference of \$430 between the least and most efficient groups.

In both areas labour was used more efficiently on the larger farms. Obviously the larger farm units provide an opportunity to accomplish more productive work per man. While high productivity from crops and livestock

may be had regardless of farm size, it is only on the larger units that many of the labour saving devices can be profitably employed. A complete unit of power machinery requires considerable cropland acres if operating costs are to be a minimum. Sometimes small farms have a supply of family help which is greater than the labour requirements while a larger unit can be organized to fully utilize family labour over the greater part of the year and hire extra help for busy periods. Higher labour productivity can often be achieved by reorganization of the enterprises and more timeliness in operation of work.

Table 30.- Relation of Labour Efficiency to Labour Earnings,  
Gilbert Plains and Sifton Areas, 1948-49

P.M.W.U.'s a/ per man	: Number : of : farms	: Average : P.M.W.U.'s : per man	: Cropland : acres	: Product- : ive : al units	: Man : equiva- : ents	: Labour : earnings
	:	:	:	:	:	:
						- dollars -
<u>Gilbert Plains</u>						
0-110	27	87	168	8.8	1.77	461
111-160	23	139	288	11.3	1.70	2,289
161 and over	31	217	410	13.3	1.57	2,607
<u>Sifton</u>						
0-110	20	84	115	5.8	1.40	396
111-160	40	136	168	11.5	1.40	998
161 and over	20	207	299	19.5	1.53	1,091

a/ Productive man work unit.

Efficiency in the Use of Capital.- Efficiency in the use of capital may be measured by the rate of capital turnover, which is calculated by determining the number of years required for the current farm receipts (including inventory changes) to equal the total farm capital. When a farm is operated most efficiently the farm capital is distributed among the different factors of production (land, labour, livestock and equipment) in such proportions that it will yield the highest possible returns. In determining the most profitable distribution of capital, the returns from the different production factors and the importance of the various enterprises in the farm program must be considered.

Within each area, the farms with the fastest rate of capital turnover generally had the lowest capital investment per cropland acre. The Gilbert Plains farms that were below average in efficiency had \$81 capital investment per cropland acre compared to \$41 for the farms above average. The range in capital investment per cropland acre was not as pronounced in Sifton; the farms below average had \$57 compared to \$49 for the farms above average. It is interesting to note that the farms with the fastest rate of capital turnover and largest labour earnings were not the farms with the largest total capital investment. Many operators could possibly, with better capital distribution and fuller use of many capital items, realize greater net income with a lower total capital investment.



Closely allied to the distribution of capital in affecting the rate of capital turnover are the other efficiency factors already mentioned, size of business, crop yields, livestock output and labour use. Comparing all groups, for the most part, the farms that were the most efficient in the use of capital were also the most efficient in the other four factors. The most efficient group of farms in Gilbert Plains had about \$2,500 more labour earnings than the least efficient group; on the Sifton farms the difference was about \$1,000.

Table 31.- Relation of Capital Efficiency to Labour Earnings,  
Gilbert Plains and Sifton Areas, 1948-49

	:	:	:	:	:	Livestock :	:
	:	:	:	:	:	returns :	:
	:	Number :	Capital :	Crop- :	Crop :	per \$100 :	:
Rate of capital	:	of :	invest- :	land :	yield :	invest- :	P.M.W.U. Labour
turnover	:	farms :	ment :	acres :	index :	ment :	per man:earnings
	:	:	:	:	:	:	:
	:	- dollars -	:	:	:	- dollars -	- dollars -
<u>Gilbert Plains</u>							
3.01 and over	42	21,024	258	92	91	131	845
2.01 - 3.00	22	21,990	324	103	87	165	2,451
0 - 2.00	17	16,260	348	108	102	161	3,334
<u>Sifton</u>							
3.01 and over	17	9,763	170	82	80	135	419
2.01 - 3.00	31	9,102	196	100	77	141	541
0 - 2.00	32	9,311	189	109	85	147	1,430

Compared to many other industries the turnover of capital is relatively slow on the farm. It should be speeded up as much as possible if the best possible efficiency is to be attained.

Cumulative Effect of Efficiency in Factors of Success.- While high efficiency in the use of each factor of production increases labour earnings, to be outstanding in one factor alone does not make for best returns. High labour earnings require efficient use of all factors of production. The farms that were below average efficiency in all factors returned labour earnings of \$154 (Table 32). As the efficiency in management increased there was an increase in earnings. Where the farms rated above average efficiency in all factors, the labour earnings were \$2,869 or about \$2,700 greater than those farms below average in all factors. The number of farms that were below or above average in all factors of success were relatively few. The tendency was to be about average in efficiency with the largest group being above average in two factors.

While it may be difficult for an individual operator to be above average in all factors, it will be noted that he must be better than average in efficiency for his district if he is to attain a relatively high income. This analysis emphasizes the need for high output from crops and livestock as well as maximum efficiency in the use of labour and capital.



Table 32.- The Cumulative Effect of Efficiency in Five Major Factors of Management on Labour Earnings, Combined Area of Gilbert Plains and Sifton, 1948-49

Number of factors above average	Number of farms	Labour earnings - dollars -
0	12	154
1	30	238
2	50	849
3	41	2,165
4	22	2,651
5	6	2,896

### COMBINATION OF ENTERPRISES

In the analysis of the farm business in the Gilbert Plains and Sifton areas it was found that few farms carried on a single enterprise program. The general farm business in both areas was a combination of grain growing and livestock production. In this combination both complimentary and supplementary relationships existed, each enterprise contributed to the production of the other and together produced a greater income than either could have done separately.

By diversification a farm operator may develop a farm program that partly eliminates the dangers of complete crop failure due to unfavourable weather conditions. Also, by the use of more than one enterprise, the operator may maximize the use of his resources, avoid waste in the use of land, labour and capital and provide a greater assurance of income.

Crops grown were mostly wheat, flax, oats, and barley; the livestock consisted of cattle, hogs, and poultry with cattle being the most important. These enterprises were found in varying order of importance on nearly every farm; conditions favouring the expansion of each enterprise varied with the individual farm. The combination that returned the greatest farm profit would be the one normally chosen.

On the more productive and higher priced land grain growing was generally more profitable than livestock. Most of the Gilbert Plains district and part of Sifton had fairly high yields from grain and therefore favoured grain production. On these farms, wheat and flax were usually the first crop after summerfallow followed by barley and oats with some legume or grasses filling in the rotation. Some coarse grains and forage crops were marketed through livestock. Portions of many farms were too hilly, stoney or wet to be used to advantage in the crop rotation but were suitable for pasture. On these farms the cattle were handled more as a beef enterprise to compete as little as possible for labour during the crop season.

Several conditions make it advisable to stress a livestock enterprise. Livestock may utilize waste land, convert farm by-products into a more marketable form, assist in the maintenance of soil fertility and level out peaks in the labour requirements. On many farms there was a supply of family labour available over the entire year. During the winter, this labour could only be utilized to advantage through livestock. Cattle fitted into the farm organization better than hogs or poultry. Land unsuited to cultivation and portions of the farm temporarily sown to grass could make a contribution to the farm income only through the cattle enterprise. The cattle were mostly dual purpose in type. Some dairying was done on most farms but usually not in an extensive manner. There were very little low quality feeds or farm by-products that could be profitably marketed through hogs or poultry so these enterprises were of secondary importance.

Management Problems.- Many problems confront the farm operator in determining the most suitable farm organization. A large farm entails a greater risk than a small one but it also provides opportunity for greater success. The larger the business the greater will be the need for good management. Aside from physical conditions, prices are probably the most important factor in determining the choice of enterprises, both long-time price trends and short-run fluctuations being considered. Variation in income due to organization and management can only be controlled by the individual operator. The low income on many farms indicates the importance of studying the cause of this variation.

The most efficient farm organization for both areas was one where the emphasis was placed on grain production and where livestock filled a minor role. Where crop yields are high the most profitable expansion in business would normally be by increasing the cultivated acres. Often, however, crop yields are low or land high priced and difficult to acquire so that expansion can only be practical by intensification of organization. The degree of intensification will depend on the availability of resources and how fully they can be utilized.

On few farms will all the land be suitable for the same crop. The operator should strive to select as wide a range of crops as possible that are adaptable to the locality and yet choose only those that will return, one year with another, the highest returns for the use of land, labour, equipment and management. Recommended grains are constantly being replaced by more rust resistant or improved varieties. Where fertility is a problem, the continuation of profitable grain production may depend on the adoption of soil building crops in the rotation.

The type and intensity of the livestock enterprise will depend on the availability of labour, pasture, farm by-products and the comparative advantage of feeding marketable grain. A small hog or poultry enterprise may be fed largely on by-products but a large one must depend mainly on grain. Soil building crops will in turn produce high quality forage feed. It is seldom in a well managed program that hay and straw are sold off the farm. Cattle may profitably convert this produce into farm revenue. Dairy cattle require considerable building investment and attention but a beef enterprise may be handled with a minimum of shelter and does not compete with crops for labour.

When dealing with efficiency in management and organization, it is important to consider if, or when, by increasing the input of any one factor of production, there will be a relatively greater increase in net returns. As units of labour are added to the business the production of the farm will certainly increase but past a definite point of labour inputs the value of increased production will not equal the additional labour costs. This law of diminishing returns applies to all factors of farm production. It is generally more important to bring the efficiency in all factors (labour, capital, livestock, crops and size of business) up to at least average than to bring any one of these alone to a high level of efficiency. Usually the highest returns, in relation to inputs, will be realized by improving the least efficient factor. However, it is seldom that more than two major enterprises are highly efficient on any one farm. Often it might be more advantageous to discontinue a small, inefficient enterprise and to concentrate on the weak points of those enterprises that contribute most to the farm business.



### SUMMARY

1. The areas included in this study are situated north of the Riding Mountain National Park and west of Lake Dauphin. Gilbert Plains area is located on clay and clay loam soils in the Degrading Black Earth and Grey Wooded soil zone; Sifton area is located on lighter loams and transition soils in the Rendzina soil zone.

2. The climate is typical of that of the eastern sections of the prairie provinces. With a frost free period ranging from 110 to 115 days and average yearly rainfall of 16.5 inches, all common crops may be grown. Summers are cooler than in the southern parts of the province. The topography varies from undulating to smooth. Flooding often occurs during spring run-off and after heavy rains with damage to crops. The Gilbert Plains area was settled about 1900 and the Sifton area within the following decade.

3. Data for this study, based on farm business records for the year ending May 30, 1949, was obtained from 81 farm operators in the Gilbert Plains area and 80 farmers in the Sifton area.

4. The general area is suited to mixed or diversified farming. In size, farms averaged 300 acres with 75 per cent improved at Gilbert Plains and 257 acres with 65 per cent improved at Sifton. On the Gilbert Plains farms wheat occupied 30 per cent of the cultivated land, oats and barley combined 39 per cent, and flax and other crops were unimportant. In Sifton, oats was the largest crop followed by flax with wheat third in importance. In both areas, 34 per cent of the cultivated land was in summerfallow. Livestock production consisted mainly of cattle and poultry and was handled in a fairly extensive manner. Some livestock was kept on nearly every farm. The Gilbert Plains farms are generally well adapted to grain production and handled livestock as a secondary enterprise; many of the farms in the Sifton area have considerable land suitable for pasture only and used livestock as a major enterprise.

5. Total capital investment averaged over \$20,000 on the Gilbert Plains farms and about half that amount on the farms in Sifton. The greatest difference was in real estate capital, the land of the Gilbert Plains area having a much higher value.

6. During the year of the survey, the crop yields were normal and prices for agricultural products relatively high. The labour earnings, or the income to the operator for his labour plus the value of the perquisites, averaged \$1,804 for all farms in Gilbert Plains and \$871 for the Sifton farms.

7. The predominant type of farm in both areas was the grain farm. About 80 per cent of the farms in the Gilbert Plains area and 60 per cent in Sifton derived over half their farm income from crop sales. Livestock farms made up about 26 per cent of the total in Gilbert Plains and 30 per cent in Sifton. These farms derived over half their farm income from the sale of livestock and livestock products. Three farms in Gilbert Plains and eight farms in Sifton operated close to a subsistence level, the operators deriving a large part of their living from perquisites or from such sources as pensions, gifts or off farm labour.



8. By type of farm, the highest labour earnings were associated with those which emphasized grain production. The grain farms, with 288 acres of cropland, 11.0 productive animal units and a total capital investment of \$17,582, averaged labour earnings of \$1,630; the livestock farms, with 155 cropland acres, 14.6 animal units and a capital investment of \$9,774, averaged \$815 in labour earnings. Within the different farm types, size of business, high crop yields, and high production from livestock were in direct relation to labour earnings.

9. The subsistence farms averaged 168 total acres which was a little more than half improved and had a capital investment of \$5,128. Receipts from all farm sources were \$779 of which crop sales made up 34 per cent. The income from non-farm sources averaged \$731 per farm. Labour earnings averaged \$276 and the operator's net worth \$5,450.

10. In both areas the farm surplus on many of the smaller farms represented a loss or was insufficient to reduce the farm indebtedness materially or increase the operator's savings. With the same farm organization - acres, cropping pattern, number of livestock, capital investment and labour force - as operated in 1948-49, based on longtime average yields, prices and costs, one could expect a fairly satisfactory farm surplus from a half section or larger farm in the Gilbert Plains area and from a three-quarter section or larger farm in Sifton. For the year under review, the total living costs averaged \$2,140 for all farms in Gilbert Plains and \$1,612 for the Sifton farms. These living costs indicate a relatively high plane of living.





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